

IN THE CLAIMS:

1. (Currently Amended) A substantially purified nucleic acid molecule that encodes a maize or soybean ~~carbon assimilation pathway~~ ribulose-bisphosphate carboxylase enzyme or fragment thereof, ~~wherein said maize or soybean carbon assimilation pathway enzyme is selected from the group consisting of:~~

(a) ~~ribulose-bisphosphate carboxylase;~~

(b) ~~phosphoglycerate kinase;~~

(c) ~~glyceraldehyde 3-phosphate dehydrogenase;~~

(d) ~~putative glyceraldehyde 3-phosphate dehydrogenase;~~

(e) ~~triose phosphate isomerase;~~

(f) ~~aldolase;~~

(g) ~~fructose 1,6-bisphosphatase;~~

(h) ~~transketolase;~~

(i) ~~putative transketolase;~~

(j) ~~sedoheptulose 1,7-bisphosphatase;~~

(k) ~~D-ribulose 5-phosphate 3-epimerase;~~

(l) ~~ribose 5-phosphate isomerase;~~

- (m) putative ribose 5-phosphate isomerase;
- (n) ribose 5-phosphate kinase;
- (o) phosphoenolpyruvate carboxylase;
- (p) NADP-dependent malate dehydrogenase;
- (q) aspartate aminotransferase;
- (r) putative aspartate aminotransferase;
- (s) alanine aminotransferase;
- (t) NADP-dependent malic enzyme;
- (u) NAD-dependent malic enzyme;
- (v) PEP carboxykinase;
- (w) putative PEP carboxykinase;
- (x) pyruvate, phosphate dikinase; and
- (y) pyrophosphatase.

wherein said nucleic acid molecule comprises the sequence of SEQ ID NO: 5 or complement thereof.

23. (New) A substantially purified nucleic acid molecule comprising a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.
24. (New) A substantially purified nucleic acid molecule consisting of a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.
25. (New) A substantially purified nucleic acid molecule comprising a nucleic acid sequence having between 100% and 90% sequence identity with a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.
26. (New) The substantially purified nucleic acid molecule of claim 25, wherein said nucleic acid molecule comprises a nucleic acid sequence having between 100% and 95% sequence identity with a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.
27. (New) The substantially purified nucleic acid molecule of claim 26, wherein said nucleic acid molecule comprises a nucleic acid sequence having between 100% and 98% sequence identity with a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.
28. (New) The substantially purified nucleic acid molecule of claim 27, wherein said nucleic acid molecule comprises a nucleic acid sequence having between 100% and 99% sequence identity with a nucleic acid sequence of SEQ ID NO: 5 or complement thereof.